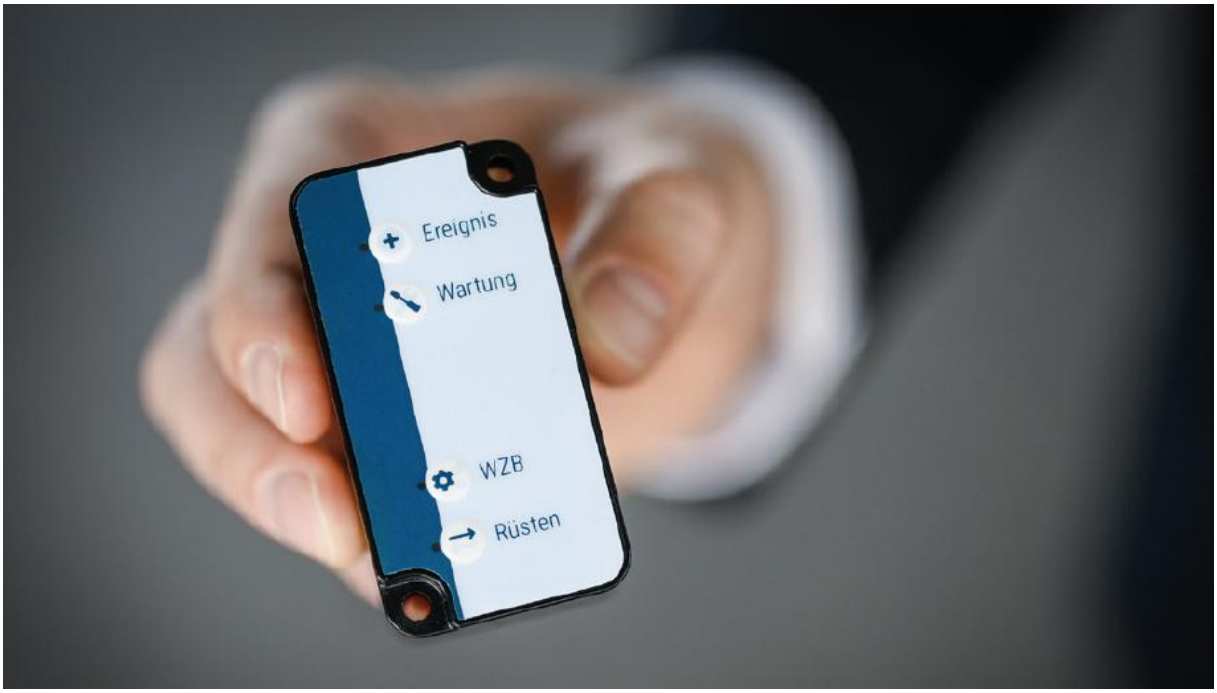

15% INCREASED PRODUCTIVITY

thanks to intelligent electronics development

LCM supports its customers with AI-supported real-time sensor technology to minimize resource waste and production downtime.

An open gate in the production hall is often enough for tools to cool down, the produced components to shrink by a hundredth of a millimeter and the specification to be incorrect. If there is no timely quality control, the parts from the entire weekend production become rejects. This waste of raw materials and production losses are often very expensive for companies - for example in the plastics industry.

To remedy the situation, the LCM "Sensors & Communication" division formed a powerful development alliance with a customer. The decision to work with LCM was an obvious one, as the team has proven expertise in the design of embedded hardware, the associated firmware and wireless data transmission. All these skills were necessary to develop a solution that was both practical and robust. This is based on wireless real-time sensor data transmission from production machines and data evaluation using special analysis software that works with artificial intelligence (AI).

At the heart of the solution are compact, intelligent

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SensorTags measuring 38 x 70 x 38 mm. They are attached directly to the injection molding machines, where they record movements and vibrations. Because high temperatures occur in the immediate vicinity of the tools, all installed components are heat-resistant. To ensure that the SensorTags can work completely independently, they also have an autonomous and long-lasting power supply.

Mounted SensorTag

The data is then sent to an edge gateway via Bluetooth up to 100 times per second and transmitted from there to the cloud via LTE, LAN or Wi-Fi. There, they are monitored by AI-based analytics software. The slightest deviations from the defined production process are detected in real time and, if necessary, reported as an alarm directly to the smartphones, tablets or computers of those responsible. After processing, all incidents are logged and systematically recorded.

The finished solution has been in use at various production companies since fall 2021 - with measurable success. Just six months after introducing the digitalization solution, a renowned vehicle lighting manufacturer achieved an increase in productivity of almost 15 percent and a 50 percent reduction in downtime. In future, deviations are to be classified automatically at the edge gateway using simplified AI methods. The AI will be trained further in the cloud in order to derive specific recommendations for action to reduce machine downtimes in the long term. LCM is already working hard on this next major milestone in the field of AI-supported condition monitoring.

"We have many years of experience with energy-efficient, wireless sensor technology. This enables us to meet the needs of our customers from a wide range of industries in a customized manner."

Erwin Schimbäck,

Team Leader Electronics LCM

Evaluation via tablet PC

FACTBOX ELECTRONICS DEVELOPMENT

LCM designs, evaluates and implements state-of-the-art electronic systems for wireless communication for a wide range of applications.

- The intelligent interaction of hardware and software as well as a comprehensive understanding of the system form the basis for increased productivity.
- Short transmission times and maximum transfer security enable real-time solutions.
- "Ultra-low-power microcontrollers and radio chips ensure efficient acquisition of sensor data and long-lasting, autonomous operation.
- Sophisticated signal processing and system modeling are required for various applications.

WHO BENEFITS?

As a one-stop store at the interface between research and development, LCM is a leader in the fields of sensor technology, power electronics and wireless communication. On this basis, integrated complete solutions are created that give numerous companies a competitive advantage. Successful references from a wide range of industries confirm this. They range from the injection molding, steel and automotive industries to the construction machinery industry.

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